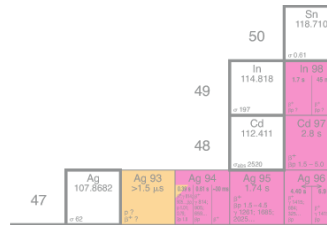


Nucleonica Knowledge Objects, Packages and List of Features

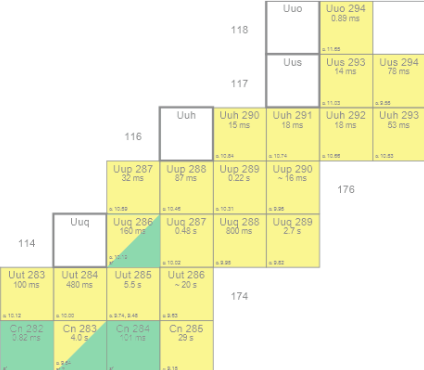
In the following table, “knowledge objects” refer to the individual programs listed in the table of contents (i.e. under the Nuclear Data, Applications, Tools, and Networking categories). These are listed in the first column. Columns 2 and 3 provide a list of features of each knowledge object for the Free and Platinum packages.

- The **Free package** provides user access to all the knowledge objects with restricted features. This gives users the opportunity to test the basic features and obtain a feeling for the portal.
- The **Premium package** provides user access to all the knowledge objects with full features. There is an annual user charge for the Premium package. Individual and institutional multi-user licenses are available.

Knowledge Objects	Free	✓	Premium	✓
Nuclide Explorer				
Types of charts	Decay mode	✓	Decay mode	✓
			Half-lives	✓
			spin, parity, spin and parity	✓
			Binding energy	✓
			Stable / unstable	✓
			create new charts / User defined	✓
Change background colour			yes	✓
Filter decay modes			All features	✓
Nuclide Datasheets				
Basic reference data	Half-lives, BRs, decay modes etc.	✓	half-lives, BRs, decay modes etc.	✓
			derived data (heat gammas neutrons, etc.)	✓
Cross sections			averaged	✓
			Point-wise (in graphical form)	✓
			Average (multi-group)	✓
			(n,xn)	✓
Radiation databases			JEF3.1, 8th Table of Isotopes	✓
			discrete energies, emission probs.	✓
Output			view data in graphical form	✓
			download tables in Excel, csv formats	✓



Fission Yields				
Nuclides	U-235, Pu-239	✓	U-235, Pu-239	✓
			All other fissionable nuclides	✓
Databases	JEF3.1	✓	JEF3.1	✓
			ENDF, JENDL	✓
Neutron spectrum	Thermal fission	✓	Thermal fission	✓
			Fast, 14 MeV, spontaneous fission	✓
Compare with other fission parents			yes	✓
Compare different libraries			JEF3.1, ENDF, JENDL3.2	✓
Output			download tables output in Excel, csv formats	
Nuclear Data Retrieval				
Databases	Nucleonica	✓	Nucleonica	✓
			8th TORI, ICRP 68 & 72, EGAF	✓
Nuclide search			yes	✓
Radiation search	yes	✓	yes	✓
Advanced search			yes	✓
Output			download table output in Excel, csv formats	✓
Mass Activity Calculator				
Sources	Single nuclides	✓	Single nuclides	✓
			nuclide mixtures	✓
Conversion to/from	mass/activity/atoms/moles	✓	mass/activity/atoms/moles	✓
			gamma dose rate	✓
			effective dose	✓
			isotopic powers	✓
Decay Engine				
Sources	single nuclides	✓	single nuclides	✓
			nuclide mixtures	✓
Calculated/output quantities	half-life, mass, activity, atoms	✓	half-life, mass, activity, atoms	✓
Options			branching ratios (BRs), decay mode	✓
			Isotopic powers (α , $\alpha+\beta$, $\alpha+\beta+\gamma$)	✓
			gamma dose rate, gamma emission rate	✓
			ingestion, inhalation radiotoxicities	✓
			Spontaneous fission rate	✓
			disintegrations	✓
			released energy, helium production	✓
Additional Features			create nuclide mixture from decay output	✓
			rescale output	✓
Output	as tables and graphs onscreen	✓	as tables and graphs onscreen	✓
			download tables in Excel, csv formats	✓
			download Graphs	✓



Knowledge Objects	Free	✓	Premium	✓
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Dosimetry & Shielding				
Sources	single nuclides	✓	single nuclides	✓
			nuclide mixtures	✓
Modes of operation	gamma dose rate	✓	gamma dose rate for a given shield and source	✓
			shield thickness for given dose rate	✓
			source strength for given dose rate and shield	✓
Options			Set threshold energy, etc.	✓
			Dose Rate/Thickness Graph	✓
Output			download tables in Excel, csv formats	✓
			download Graphs	✓

Range & Stopping Power				
Projectiles	electrons, positrons, protons, alphas	✓	electrons, positrons, protons, alphas	✓
			positrons, muons, heavy ions	✓
Targets	elements	✓	elements	✓
			predefined compounds	✓
			user-defined compounds	✓
Options			alternative stopping power units	✓
Output			graphs of range & stopping power	✓
			Bragg curve	✓
			Output table	✓

webKORIGEN				
Number of nuclides	Top 20	✓	>800	✓
Modes of operations	reactor irradiation	✓	reactor irradiation	✓
			reactor irradiation and decay	✓
			decay	✓
			irradiation, decay, partitioning, cooling	✓
Neutron Activations			in thermal , PWR, BWR, FR neutron spectra	✓
Reactor type	PWR	✓	PWR	✓
			BWR	✓
			Fast reactor	✓
			Dedicated facility	✓
Types of fuel	UOX	✓	UOX	✓
			MOX	✓
Output	Actinides, FPs, and helium	✓	Actinides, FPs, and helium	✓
			additional chemical sub-categories	✓
			Plot k_{∞} , nuclides, elements, totals, etc.	✓

Universal Nuclide Chart				
	all features	✓	all features	✓

